Title: Nonstacionary particle processes
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Abstract: Many real phenomena can be modeled as random closed sets of different Hausdorff dimension in $\mathbb{R}^d$. One of the main characteristics of such random set is its expected Hausdorff measure. In case that this measure has a density, the density is called intensity function. In present paper we define a nonparametric kernel estimation of the intensity function. The concept of $\mathcal{H}^k$-rectifiable set has a key role here. Properties of kernel estimation such as unbiasness or convergence behavior are studied. As the estimation may be difficult to compute precisely numerical approximations are derived for practical use. Parametric models are also briefly mentioned and the kernel estimation is used with the minimum contrast method to estimate the parameters of the model. At last the suggested methods are tested on simulated data.

Keywords: stochastic geometry, intensity measure, random closed set, kernel estimation